

CLAIMS

What is claimed is:

1. A blend comprising a paraffin wax emulsion and a polymer emulsion, said polymer emulsion comprising a polymer containing polymerized units of one or more C₁-12 esters of acrylic or methacrylic acid and a vinyl ester of a C₈₋₁₃ neo-acid, said blend, when applied as a coating to a substrate and dried, has a hydrostatic head barrier sufficient to prevent passage of aqueous fluids but allow passage of water vapor through it; said substrate selected from the group consisting of a nonwoven web, a nonwoven absorbent pad, a nonwoven textile, and a textile fabric.
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2. The blend of claim 1 wherein the polymer has polymerized units of:
 - (a) 5 - 40 wt % of a vinyl ester of a C₈₋₁₃ neo-acid;
 - (b) 30 - 80 wt % of a C₁₋₁₂ alkyl ester of acrylic acid or a C₁₋₁₂ alkyl ester of methacrylic acid;
 - 15 (c) 0 - 20% wt % of a vinyl ester of a saturated aliphatic acid;
 - (d) 0 - 30 wt % ethylene, styrene or butadiene;
 - (e) 0 - 20 wt % a di-(C₁₋₁₃)alkyl maleate or a di-(C₁₋₁₃)alkyl fumarate;
 - (f) 0 - 5 wt % of a hydroxyalkyl acrylate or a hydroxyalkyl methacrylate;
 - (g) 0 - 5 wt % acrylamide or methacrylamide; and,
 - 20 (h) 0 - 10 wt % of an alpha, beta-ethylenically unsaturated monocarboxylic acid, based on the total weight of monomers in the polymer.
3. The blend of claim 1 wherein the polymer has polymerized units of:
 - (a) 15 - 30 wt % of a vinyl ester of a C₈₋₁₃ neo-acid;
 - (b) 40 - 70 wt % of a C₁₋₁₂ alkyl ester of acrylic or a C₁₋₁₂ alkyl ester of methacrylic acid;
 - 25 (c) 0 - 10 wt % of a vinyl ester of a saturated aliphatic acid;
 - (d) 0 - 20 wt % ethylene, styrene or butadiene;
 - (e) 0 - 10 wt % a di-(C₁₋₁₃)alkyl maleate or a di-(C₁₋₁₃)alkyl fumarate;
 - (f) 0 - 5 wt % of a hydroxyalkyl acrylate a hdyroxyalkyl acrylate;
 - 30 (g) 0 - 5 wt % acrylamide or methacrylamide; and,
 - (h) 0 - 10 wt % of an alpha, beta-ethylenically unsaturated monocarboxylic acid

4. The blend of claim 1 wherein the hydrostatic head barrier is at least 60 mm.

5. The blend of claim 1 comprising, on a 100 % dry weight solids basis:

10 - 90 wt %	Polymer Emulsion
10 - 90 wt %	Paraffin Wax Emulsion
0 - 80 wt %	Water Soluble Polymer or Protective Colloid
0 - 5 wt %	Fluoro Surfactant
0 - 10 wt %	Other components

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6. The blend of claim 1 comprising, on a 100 % dry weight solids basis

20 - 80 wt %	Polymer Emulsion
20 - 80 wt %	Paraffin Wax Emulsion
0 - 10 wt %	Water Soluble Polymer or Protective Colloid
0 - 3 wt %	Fluoro Surfactant
0 - 5 wt %	Other components

7. The blend of claim 1 wherein the polymer emulsion has a T_g of -15 °C to
-70 °C.

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8. The blend of claim 1 wherein the paraffin wax emulsion further comprises
polyethylene wax, carnauba wax or ethylene acrylic acid.

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9. A multi-layer material comprising comprising

(a) at least one layer of a material selected from the group consisting of a
nonwoven web, an absorbent pad, a textile fabric, or a nonwoven fabric; and

(b) at least one layer of a coating formulation comprising a blend of a paraffin wax
emulsion and a polymer emulsion, said polymer emulsion comprising a polymer
containing polymerized units of one or more C₁₋₁₂ esters of acrylic or methacrylic acid
and a vinyl ester of a C₈₋₁₃ neo-acid, said coating formulation, after drying, having a

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hydrostatic head barrier sufficient to prevent passage of aqueous fluids but allow passage of water vapor through it.

10. The multi-layer material of claim 9 wherein the polymer has polymerized
5 units of:

- (a) 5 - 40 wt % of a vinyl ester of a C₈₋₁₃ *neo-acid*;
- (b) 30 - 80 wt % of a C₁₋₁₂ alkyl ester of acrylic acid or a C₁₋₁₂ alkyl ester of methacrylic acid;
- (c) 0 - 20% wt % of a vinyl ester of a saturated aliphatic acid;
- 10 (d) 0 - 30 wt % ethylene, styrene or butadiene;
- (e) 0 - 20 wt % a di-(C₁₋₁₃)alkyl maleate or a di-(C₁₋₁₃)alkyl fumarate;
- (f) 0 - 5 wt % of a hydroxyalkyl acrylate or a hydroxyalkyl methacrylate;
- (g) 0 - 5 wt % acrylamide or methacrylamide; and,
- (h) 0 - 10 wt % of an alpha, beta-ethylenically unsaturated monocarboxylic acid,
15 based on the total weight of monomers in the polymer.

11. The multi-layer material of claim 9 wherein the polymer has polymerized
units of:

- (a) 15 - 30 wt % of a vinyl ester of a C₈₋₁₃ *neo-acid*;
- 20 (b) 40 - 70 wt % of a C₁₋₁₂ alkyl ester of acrylic or a C₁₋₁₂ alkyl ester of methacrylic acid;
- (c) 0 - 10 wt % of a vinyl ester of a saturated aliphatic acid;
- (d) 0 - 20 wt % ethylene, styrene or butadiene;
- (e) 0 - 10 wt % a di-(C₁₋₁₃)alkyl maleate or a di-(C₁₋₁₃)alkyl fumarate;
- 25 (f) 0 - 5 wt % of a hydroxyalkyl acrylate a hdyroxyalkyl acrylate;
- (g) 0 - 5 wt % acrylamide or methacrylamide; and,
- (h) 0 - 10 wt % of an alpha, beta-ethylenically unsaturated monocarboxylic acid

12. The multi-layer material of claim 9 wherein the hydrostatic head barrier is at
30 least 60 mm.

13. The multi-layer material of claim 9 comprising, on a 100 % dry weight solids basis:

10 - 90 wt %	Polymer Emulsion
10 - 90 wt %	Paraffin Wax Emulsion
0 - 80 wt %	Water Soluble Polymer or Protective Colloid
0 - 5 wt %	Fluoro Surfactant
0 - 10 wt %	Other components

14. The multi-layer material of claim 9 comprising on a 100 % dry weight solids
5 basis

20 - 80 wt %	Polymer Emulsion
20 - 80 wt %	Paraffin Wax Emulsion
0 - 10 wt %	Water Soluble Polymer or Protective Colloid
0 - 3 wt %	Fluoro Surfactant
0 - 5 wt %	Other components

15. The multi-layer material of claim 9 wherein the polymer emulsion has a T_g of
-15 °C to -70 °C.

10 16. The multi-layer material of claim 9 wherein the paraffin wax emulsion further
comprises polyethylene wax, carnauba wax, or ethylene acrylic acid.

17. A method for making a multi-layer material comprising:

(a) providing at least one layer of a material selected from the group consisting of a nonwoven web, an absorbent pad, a textile fabric, or a nonwoven fabric; and

5 (b) at least one layer of a coating formulation comprising a blend of a paraffin wax emulsion and a polymer emulsion, said polymer emulsion comprising a polymer containing polymerized units of one or more C₁₋₁₂ esters of acrylic or methacrylic acid and a vinyl ester of a C₈₋₁₃ neo-acid;

10 (c) applying said coating formulation to said material; and

 (d) drying said coating formulation;

 said dried coating formulation having a hydrostatic head barrier sufficient to prevent passage of aqueous fluids through it, but allow passage of water vapor.

18. The method of claim 17 wherein the polymer has polymerized units of:

19. The method of claim 17 wherein the polymer has polymerized units of:

(a) 15 - 30 wt % of a vinyl ester of a C₈₋₁₃ *neo*-acid;

(b) 40 - 70 wt % of a C₁₋₁₂ alkyl ester of acrylic or a C₁₋₁₂ alkyl ester of methacrylic acid;

30 (c) 0 - 10 wt % of a vinyl ester of a saturated aliphatic acid;

(d) 0 - 20 wt % ethylene, styrene or butadiene;

(e) 0 - 10 wt % a di-(C₁₋₁₃)alkyl maleate or a di-(C₁₋₁₃)alkyl fumarate;

(f) 0 - 5 wt % of a hydroxyalkyl acrylate a hydroxyalkyl acrylate;

- (g) 0 - 5 wt % acrylamide or methacrylamide; and,
- (h) 0 - 10 wt % of an alpha, beta-ethylenically unsaturated monocarboxylic acid

20. The method of claim 17 wherein the hydrostatic head barrier is at least 60
5 mm.

21. The method of claim 17 comprising, on a 100 % dry weight solids basis:

10 - 90 wt %	Polymer Emulsion
10 - 90 wt %	Paraffin Wax Emulsion
0 - 80 wt %	Water Soluble Polymer or Protective Colloid
0 - 5 wt %	Fluoro Surfactant
0 - 10 wt %	Other components

22. The method of claim 17 comprising, on a 100 % dry weight solids basis

20 - 80 wt %	Polymer Emulsion
20 - 80 wt %	Paraffin Wax Emulsion
0 - 10 wt %	Water Soluble Polymer or Protective Colloid
0 - 3 wt %	Fluoro Surfactant
0 - 5 wt %	Other components

23. The method of claim 17 wherein the polymer emulsion has a T_g of -15 °C to -70 °C.

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24. The method of claim 17 wherein the paraffin wax emulsion further comprises polyethylene wax, carnauba wax or ethylene acrylic acid.